

ther this be the reason or not, the fact is indisputable: the appearance is described to be as if the integuments were drawn in."

6. *Physiological and Chemical Researches on the blood of the vena porta.*—The first No. of the forty-fourth volume of *Rust's Magazin* contains an account of some highly interesting researches by Professor *Schultz*, respecting the chemical and physiological differences between the blood of the vena porta, and that of the arteries and other veins. The following is a succinct summary of the results, as given in the *Gazette Méd. de Paris*, (15th August, 1835.)

1st. The blood of the vena porta is in general blacker than other venous blood, although this difference is not always manifest to the sight; it is not reddened by the neutral salts, or exposure to the atmosphere, or by the action of oxygen.

2nd. The blood of the vena porta does not generally coagulate, but when it does, the coagula are less firm than those of the other arteries. In those cases in which it has coagulated, it liquifies entirely or partly at the end of from twelve to twenty-four hours, and produces, as well as that which does not coagulate, a black sediment, upon which is formed clear serum.

3d. The blood of the vena porta contains on an average, when fresh, 5.23 per cent., and when dry, 0.74 per cent. less fibrine than the blood of the arteries and the other veins.

4th. The liquid blood of the vena porta contains generally a little less solid matter (0.18 to 0.3 per cent.) than the arterial blood and the other venous blood.

5th. Its serum contains generally 1.58 less solid matter than the arterial serum, and 0.80 less than that of other venous blood. In the dry state, the first is of an ash-gray, the second yellow, the third greenish-yellow.

6th. The blood of the vena porta contains proportionably more cruor and less albumen; the contrary is the case in the arterial blood: the dry cruor of the vena porta is brownish gray, that of the other veins deep red, that of the arteries bright red.

7th. The blood of the vena porta contains in its solid parts almost twice as much fat as that of the arteries and the other veins. The proportion is as follows:

Blood of the vena porta,	- - - -	1.66 per cent.
Arterial blood,	- - - -	0.92 "
Venous blood of the other veins,	- - - -	0.83 "

8th. The dry serum of the vena porta contains but 0.27 per cent. more fat than the dry serum of the arteries and the other veins.

9th. The albuminous cruor of the vena porta contains 1.11 per cent. more fat than that of the arterial blood, and 1.21 per cent. more than that of the blood of the other veins.

10th. It is in the fibrin that this difference is the greatest. The dry fibrin of the vena porta contains 10.70 per cent. of fat; that of the arteries 2.34 per cent., so that the difference is 8.36 per cent.

11th. The fat of the blood of the vena porta is blackish brown and unctuous; that of arterial blood and other venous blood white, or yellowish-white and crystalline; that of the white chyle to two-thirds liquid and one-third crystalline.

#### PATHOLOGY.

7. *On the Pathology of Scrofula.* By WM. STOKES, M. D.—In the varied catalogue of morbid affections to which man is liable, there is scarcely one of such paramount importance—such engrossing interest, as scrofula, whether we look to the obscurity of its origin, its insidious progress, the number and variety of the organs which it attacks, or its remarkable intractability, and extensive fatality. It is indeed, a subject of deep concern to every one who is engaged in the pursuit of medical knowledge; and I do therefore entreat your undivided attention while I endeavour to give you some clear ideas as to the meaning of what has been termed the *scrofulous diathesis*, and scrofula itself.

It is now generally admitted, that a great proportion of our improved knowledge on the subject of scrofula, as well as many other diseases, has been the

result of those splendid anatomical and pathological investigations which have distinguished modern times. The older authors knew little of pathological or comparative anatomy, and hence it was, that *scrofula*, on which pathology has shed such a broad and searching light, was to them an intangible essence, something which they knew to exist, but could neither portray nor define. If we look to what their opinions were on this subject,—opinions which, I regret to state, are not yet sufficiently exploded, we shall find that they are based on the then prevailing doctrines of exclusive humoralism; and that, instead of attempting to reduce the phenomena of *scrofula* to a fixed and tangible formula, they sought to explain it by referring to certain peccant and noxious humours in the system. But, in order to arrive at accurate notions on this subject, we must begin with the first formation of the human body; we must trace *scrofula* back to its primal source, and carefully explore its anatomical constitution.

If we examine the capillary circulation in its physiological state, we shall find two kinds of circulating fluids, one distinguished by its red colour, and called *blood*, the other transparent and whitish, or colourless, and termed *lymph*. In fact, we have two kinds of capillaries, one containing fibrin and colouring matter blended with an albuminous fluid, the other circulating only a colourless fluid containing little or no fibrin, and almost identical with serum. This is a fact which is now generally admitted. It has been supposed, that the red and white capillaries differ only in point of size, and this is rendered probable by the fact, that in cases of inflammation, vessels which previously contained only a colourless fluid become dilated, and are rendered capable of transmitting red blood. This goes very far in support of the doctrine, that the red and white capillaries differ only in respect to size. Let us take a few out of many examples of this kind. The circulation of the serous membranes in their healthy state is entirely white, but, in an inflammatory condition, we can with the greatest facility, trace numerous red vessels ramifying through their substance, as you may observe in inflammations of the arachnoid, pleura, peritoneum, and other white tissues. You may see the same also in the case of a mucous membrane, as in that of the conjunctiva where it passes over the transparent cornea. This condition subsides with the disappearance of the inflammatory action.

These investigations, however, as to the cause of the difference between the red and white capillaries, are not of great moment in a pathological point of view; it will be sufficient for our purposes merely to admit this difference, and bear chiefly in mind the relative compositions of the fluids which circulate through them. One of these, as has been already stated, is called *blood*, and contains a quantity of fibrin and colouring matter; the other is termed *lymph*, and is chiefly composed of water and albumen; the former is characterized by the presence of fibrin, a highly animalized product as containing a large proportion of azote, the latter consists of materials of an inferior degree of animalization, and in which we can scarcely detect the existence of azote. Recollecting this remarkable difference in the nature of the circulating fluids we find, when we come to examine the solids of the body, that some organs are supplied with red blood, while others receive only white blood, and hence the grand physiological division of the body into *red and white tissues*; the red containing fibrin and colouring matter, and endowed with great vitality; the white containing chiefly albumen, and possessing vital power in a comparatively weak and imperfect degree. To give you an example of this, let us take the muscular fibre (which may be looked upon as the most highly vitalized of animal products), and we shall find that its tissue is red, it is supplied by red vessels, and exhibits an acute sensibility to external as well as internal stimuli. On the other hand, we observe that the white tissues, such as cartilage, tendon, and serous membrane, have a white and albuminous fluid circulating through them, that they are of an inferior organization, and of a lower degree of vitality, and that, in a state of health, they are almost insensible to ordinary stimuli.

In order to prove the close connexion which exists between the white tissues and a white circulation, it is necessary that we should admit that these tissues are vascular; and on this point, it must be confessed, there is some difference of opinion among physiologists. Some say that the serous membranes and other white tissues are not supplied with vessels and nerves like other parts of the body, but that they are to be considered as a mere exudation. This is the opinion of Rudolphi.

This notion, however, does not appear to be founded on truth; it has been disproved by the investigations of many eminent physiologists, but by none more than by Dr. Graves in his excellent lecture on the lymphatic system. Let us enquire, briefly, whether it be true that these tissues are supplied with vessels containing white blood. That such is the case appears from the fact of the *sudden development* of red vessels in those tissues when in a state of inflammation. Now, it cannot be supposed that an irritation, which has lasted only for a few minutes, could be capable of forming new vessels. That vessels already formed might become dilated in a very short space of time we can easily conceive; but that they should start into existence in the space of a few minutes is totally incomprehensible. The sudden appearance of these vessels does not by any means prove that they are new creations; it rather tends to show that they must have existed previously to the attack of inflammation which rendered them visible, and that they escaped observation before that occurrence, from their extreme minuteness and from the colourless nature of the fluid they contained. The next thing to be adduced in support of this view of the question is this:—that parts unconnected with any red tissue shall themselves become red under the influence of the inflammatory process. Thus, in a case of pleuritis, for instance, we observe that the lymph which has been effused becomes gradually organized, and ultimately converted into serous membrane, forming those bands of adhesion with which you are all familiar. At certain periods of this process, vessels carrying red blood may be distinctly seen shooting through the lymph, which you must bear in mind, is surrounded on all sides by the original serous membrane. These vessels are sometimes of great size; I have seen them, in a case of peritonitis, as thick as a crow-quill.

As the organization advances to completion, we find that these vessels disappear, and a colourless serous membrane is formed. Now, here we have a newly organized tissue, presenting the same characters as serous membrane, and having no connexion whatever with any red tissue; and yet it is not less curious than true, that if this new tissue be attacked with inflammation, it will become distinctly red, and will have red vessels developed in the substance which may be examined and traced with the naked eye. The red vascularity of the synovial membrane when inflamed, may be also quoted in proof of the same fact, for this, you will recollect, is a white tissue, super-imposed on other white tissues, the cartilage and capsular ligament. In addition to this, we have an argument drawn from the great similarity which exists between the serum of the blood and lymph. Dr. Graves believes that the lymphatics, which are supposed to act merely in carrying back the debris of the system, really enjoy a higher function; that they are to be regarded as the veins of the white tissues, or in other words, that they are to the white arteries of the white tissues what the veins are to the red arteries of the red tissues. He brings forward many striking analogies between the veins and lymphatics. Both have valves, the effect of which is to direct the contained fluids towards the centre of the circulation; in both the fluid flows with an equable current toward the heart, and in both its course is directed towards the organ where it is destined to undergo the process of aëration. Dr. Graves quotes Cruikshank and others to show that lymphatics, coming from a white organ or tissue, become capable, in the inflamed state of that organ, of carrying red blood, and this is a strong argument in proof of his opinions. We find, too, that the white blood, like the red, is separable into a watery portion and a crassamentum. If any thing else were necessary to show the close connexion between the veins and lymphatics, it is furnished by the fact of their numerous anastomoses, a fact which has been placed beyond all dispute by Meckel, in his magnificent work on the lymphatics, which he has dedicated to his illustrious countryman Soemmering. Lastly it has been shown by Magendie, that the veins and lymphatics discharge a similar function, both being engaged in carrying on the process of absorption. Both then have a similarity of structure; in both the contained fluids flow in an equable current toward the heart, and are destined to be submitted to the same process of aëration; both contain a fluid separable into a clot and a watery portion; under the influence of the inflammatory process the one carries red blood as well as the other; they are intimately connected with each other by innumerable anastomoses, and both are alike engaged in discharging the functions of absorption.

It may be admitted, then, I think, that the white tissues are vascular, and that the lymphatics are the veins of the white tissues. Now, pursuing this investigation further, if we examine the different organs and parts of the human body, we find that most of them are composed of a combination of red and white tissues, but that some consist of white tissue alone. Thus, if we look to the constitution of muscular substance, we find that it is composed of muscular fibre which is a red, and cellular membrane, which is a white tissue. In the parenchymatous organs we find the same combination of red and white tissues present. But on the other hand, we observe that serous and synovial membranes, ligaments, tendons, aponeuroses, and cartilages have no mixture of red tissue in them, and are composed of white tissue alone. The fact is, that both enter into the composition of most of our organs, but in some the white tissue prevails exclusively. The same conformation is observed in all the vertebrated animals, but particularly in the mammalia and birds. Now, admitting this, it appears that the proportion of the solids is in the ratio of the red fluids, and that of white solids in the ratio of the white fluids. This proposition we can establish by a number of indisputable facts. In the higher classes of the mammalia, the red solids and fluids are found in great abundance in the viscera as well as in the muscular parts. In birds the quantity of red blood is great, and consequently we find the muscular substance red and firm, the circulation active, and the temperature high. In the amphibious animals the flesh is paler, the quantity of red blood diminishes, and as the red tissues disappear the white increase in proportion. Descending in the scale we come to fishes; here we find that the quantity of red blood is very small, and that the white tissues predominate. When we arrive at the invertebrated animals, or those which have no spinal system, we observe a disappearance of the red fluids and red tissues. I shall here beg leave to read for you an extract from Dr. Graves' lecture. "The view already taken of the intimate connexion, in all the different classes of animals, between the development of the white parts and that of the lymphatic system, is easily explained on the supposition of the lymphatics being the veins of the white parts. In invertebrated animals, which have no red blood, it would be more rational to call the vessels, conveying the white blood back to the heart, lymphatics than veins, for it is more consistent with analogy to suppose, that, in the lower animals, the retained portion of the circulating system corresponds with the former, as in the superior animals, the lymphatics are connected with parts, which in their degree of vitality, most resemble the structures of the lower animals.

"In the higher classes of animals there are not only two circulating systems, one of red blood and the other of white blood, but also a twofold system of nerves, the cerebral and the ganglionic; the latter of which, in invertebrated animals, seems to perform all the nervous functions necessary to their state of existence, while these animals are remarkable for possessing only a simple vascular system.

"We find, therefore, a correspondence between the vascular system of red blood and the nervous system of the brain and spinal marrow. They are most perfect in animals most abounding in highly aerated red blood, and decrease according to the descending scale proportioned to the decrease of red blood, until at last we arrive at the invertebrated animals possessing no red blood, and no brain or spinal marrow."—*Op. Cit.* p. 24.

These facts seem to establish the law, that the proportions of red and white solids are in the ratio of their respective fluids. But let us consider this question in a different point of view. The human fœtus, in the earlier periods of its existence, presents the appearance of a white mass without any red tissue or red vessels, in fact it resembles one of the lower, or white blooded animals, but, as the process of development goes on, the red fluid begins to appear, and the red tissues increase; as it progresses towards perfection these changes become more manifest, until at length having arrived at the summit of the zoological scale, the predominance of the red tissues is established, and even the new born infant exhibits the distinguishing characteristics of that being which holds the first rank in the order of vertebrated animals.

We have seen, gentlemen, that, in proportion as the animal rises in the scale of being, the proportion of the red to the white tissues is increased, and that the lowest animals, who possess only a white circulation, enjoy a degree of vitality not

far removed from that of the vegetable kingdom. Red blood, then, is the *pabulum vite*, the characteristic of superior organization and vitality, the rich stream by which the nobler parts of our system are nourished. Applying this to the different states of our bodies in health and disease, we find that the predominance of red blood and red tissues is a proof of health and vigour, while that of white blood and tissues shows the feeble and unhealthy individual. Before we pursue this further in its application to the investigation of disease, let us refer for a moment to some illustrations. In the Albinos the white tissues are more abundant and the quantity of red blood smaller, the muscular fibres are lax, and the constitution delicate. Again, compare woman with man. In the former the white tissues are more prevalent than in the latter, the skin is fairer, the vessels carrying red blood smaller, and the muscular system less developed. Women have more white blood and white tissues, and consequently their strength is less, and their constitution more delicate. Again, if we examine the hibernating animals, who pass long periods of time without taking food, we find that, at the termination of their hibernating season, their strength is remarkably reduced, and their tissues much paler than under different circumstances. The same diminution in the quality of red blood and red tissues, and corresponding increase in the relative quantity of white tissues, occur in the case of persons advanced in life. From some cruel experiments, made in France, it appears that, by starving animals, their tissues became blanched in a remarkable degree, and they came to represent animals of an inferior grade, so far as the preponderance of white tissue was concerned. These considerations are highly interesting and important, and remind us of Lord Bacon's aphorism, that *white is the colour of defect*.

We may, then, conclude that the white tissues are less highly animalized than the red, and of a lower degree of vitality, and, arguing *a priori*, we would say that they are less able to resist death, and that in them disease would be slower and more obstinate than in the red tissues. Such, too, is the fact, for we find that the white tissues are most liable to morbid affections of an intractable character, frequently terminating in the total destruction of the diseased parts. Cancer, tubercle, ulceration in the cartilages, ligaments, or cellular substance, all these belong to the affections of white tissues. All these terrible inflictions are to be met with in those tissues which rank low in the scale of vitality; they occur in persons of weak habit, and diminished vital energy, and in whom the white tissues predominate over the red, and they are less under the influence of those curative means which are ordinarily employed in the treatment of diseases of the red tissues. Thus we find that many of the means, which are employed with such good effects in dispersing inflammations of red parts, seem to possess very little power in removing the diseases of white parts. In making these observations, I have spoken only in reference to chronic disease, but let us turn to the acute diseases. Here we arrive at a very curious fact. If we take for instance, the serous membranes, we shall find, that, although strictly belonging to the class of white tissues, they are, nevertheless, very liable to acute and violent diseases. It appears strange that parts, possessing only an inferior degree of vitality, should be subject to such frequent and violent attacks of inflammation. Such, however, is the fact. It is very difficult to explain this apparent anomaly; I shall, however, throw out a few considerations which strike me on this point, having premised, that you are to look upon them, not as proved, but lying open to future investigation.

If we examine the pathology of serous membranes, we shall find that they are liable to inflammation in proportion to the quantity of red vessels in the organs they cover, or, in other words, the more they are connected with organs enjoying a high degree of vitality, the more they are subject to inflammation. If we take the serous membranes lining the three great cavities of the body, we shall find that this position is, to a certain degree, borne out by the facts. One of the most common cases of inflammation is that of pleurisy; we seldom open a body without meeting with evidences of its existence at some period or other of the life of the individual. Now, we know that the lung is the most vascular organ in the body, and that through it alone the whole of the circulating blood is transmitted. Next in order to the pleura, we have the peritoneum, peritonitis being a much more common affection than arachnitis, for the intestines receive a greater quantity of red blood than the brain. Among the viscera of the three great cavities, the

brain is the whitest, and receives the least blood, and we accordingly find that its investing serous membrane is least liable to attacks of acute inflammation. We have also a number of curious facts with respect to the nature of the connexion which exists between any inflamed parenchymatous organ, and the serous membrane by which it is covered. Thus in a case of hepatitis, we find that that portion of serous membrane, which invests the liver, exhibits traces of inflammation, while the rest of the peritoneum remains in its normal and healthy condition. You will see the layer of the peritoneum covering the liver in a state of inflammation and will frequently find adhesions between it and the corresponding portion of the parietal layer, but no other sign of extension of inflammation. This fact is strongly in favour of the connexion between the inflammations of serous membranes and of the organs they cover. There is another form of partial peritonitis which is exceedingly common, namely the inflammation of that portion of it which embraces the uterus, and which is so frequently met with in puerperal fever. Now here we have two considerations to bear in mind. During uterogestation, there is a remarkable development of the uterus, and about the period of delivery, it is a vast red organ, having a powerful determination of blood to its substance, as well for its own support as that of the infant. We accordingly find, that after delivery peritonitis frequently sets in, its occurrence being favoured, in the first place, by the connexion between the peritoneum and a large vascular red organ, and, in the next place, because the determination has not yet ceased, and the blood which went to the uterus (but cannot do so any longer to the same extent) seems to be directed to the peritoneum. Another consideration bearing on this point is, that when lymph has been effused in the case of inflammation of serous membranes, the process of organization and cure goes on the more rapidly, the nearer the inflamed membrane is to a red and vascular organ. If we take a case of pleuritis with effusion of lymph and serum, when is it that we find the process of organization set up in the effused lymph? It is when the fluid has been removed by absorption and the two serous layers of the pleura are no longer prevented from coming in contact, for as long as that portion investing the lung is separated from the costal pleura, either no organization at all takes place, or, if it does, it is of a slow and imperfect character. But as soon as the effused serum is removed, and the costal pleura comes into close opposition with a red and highly vascular organ, the lymph immediately undergoes a process of rapid organization. The high degree of vascularity of the lung, should be reckoned as one among the causes of the great frequency of pleural, as compared with peritoneal, adhesions.

A question may be asked here, connected with the idea that serous membranes possess only a low degree of vitality. If the vitality of serous membranes be of an inferior kind, why is it that their inflammations are so acutely painful? This I must confess, is a question not easy to be answered. There is no doubt, however, that during the existence of inflammatory affections, the vitality of these parts is considerably increased. They are elevated in the scale *for the time*. Their vessels carry red blood, their sensibility becomes exquisite, and they enjoy a reproductive power as is shown in the case of the formation of new synovial membranes, capsular ligaments, and serous membranes; thus, as Dr. Graves has beautifully remarked, showing an analogy of organization and function, between *the white tissues of the higher*, and the whole constitution of the lower animals, in whom the power of reproducing *parts* is so remarkable. This circumstance seems to be strongly in favour of Broussais' doctrine, that inflammation is nothing more than a plus degree of local vitality. Some persons think that the pain in serous inflammation depends upon the density and unyielding nature of the affected membranes, for you are all aware, that one of the effects of inflammation is at first to distend the inflamed organ. This may be true. Again, it is said, that we are also to take into account the extensive and constant motions of the serous membranes. As long as respiration goes on in the chest, or digestion in the belly, while the ribs are elevated and depressed, and while the diaphragm descends, or while the peristaltic action of the intestines goes on, there will be motion in the serous membranes which invest their respective viscera. We know, also, that the brain enjoys a certain degree of motion. We must, then, in accounting for the pain of serous inflammation, take into consideration the dense structure and little distensibility of the parts, as well as their constant and uni-



form motion. There is one fact, however, which as far as it goes, is of importance, and should not be forgotten when we consider the motions of serous surfaces in reference to pain. Of all the serous membranes the pericardium is that whose motions are most constant and violent. Yet I have now seen many cases of its inflammation, where quantities of lymph were effused, as detected by the stethoscope and by dissection, yet in which no pain whatever existed.

It appears to me that we can add something to these views in the way of explanation. When lecturing on hepatitis, I drew your attention to the fact, that if we compare the inflammations of the different solid viscera with respect to pain, we find that there is always less pain when the inflammation affects the central parts of an organ, than when it is superficial. In deep-seated pneumonia there is scarcely any pain, in pleuro-pneumonia the pain is often acute. In arachnitis the pain is violent, in deep-seated disease of the brain there is frequently no pain at all. Inflammation of the central parts of the liver is generally a painless affection; but, when it approaches the surface, it is always accompanied by more or less suffering. Now, if we consider the serous membrane of the abdomen, for instance, to be an organ of low vitality and inferior sensibility, we must seek for some other explanation of the pain which attends superficial inflammations of viscera. The following idea may be of some assistance towards an explanation. Let us take, for example, a case of inflammation occurring in one of the glandular viscera. You are aware that Müller has reduced the structure of all glands to one formula, that is to say,—a gland, in its simple state, consists of a cavity, shut at one end and open at the other, and the difference between the various glands does not depend on any departure from this rule, but on a difference in the mode of aggregation and arrangement of these little structures. You will have a notion of the structure of glands by comparing them to a bunch of grapes, the grapes representing the glandular part, and the stalks their excretory ducts. Now you are aware that in most glandular organs the secreting portion is placed towards the circumference, and the ducts accumulate towards the centre; and as the glandular portion always possesses a higher degree of vitality than the ducts, we can understand why the superficial parts of a glandular organ may be endowed with a higher sensibility than the deep-seated or central, and, consequently, that inflammation, affecting the superficial parts of glandular viscera, will be attended with more pain than when seated towards the centre, and affecting the excretory portion of the organ.

We are now, gentlemen, prepared to enter on the consideration of scrofula, on which much error still prevails, notwithstanding all that has been said and written on the subject. One great cause of the confused notions respecting scrofula arises from the circumstance, that some persons have understood the term as expressing mere local disease, as, for instance, of the glands of the neck, and having no reference to any peculiar constitutional diathesis; while others use it with reference to a peculiar condition of the system, which is called the scrofulous diathesis; and a third class apply the term *scrofulous* to a number of very opposite diseases, which have no character in common but chronicity and incurability.

By considering the subject physiologically, we escape those errors and acquire more accurate ideas as to its real nature; and, as far as I can see, we cannot help adopting the opinion of Broussais,—that scrofula implies nothing specific; but simply, that there is an undue preponderance of the white over the red tissues, and that, in such persons, there is of course a greater liability to *diseases of the lymphatic system*. Where there is an undue preponderance of the white over the red tissues, there we have the scrofulous constitution, and the liability to its accompanying diseases. Observe, there is nothing specific in this; an individual originally free from scrofula, may afterwards be subject to it, and it may, under certain circumstances, occur in all constitutions.

The characteristics of what has been termed the strumous habit, are known since the time of Galen. The skin is white, the complexion delicate and transparent, the hair fair in general, but sometimes dark; the features delicate, the upper lip thick, the alæ of the nose large, the head fully developed, the chest rather narrow, the joints large, a great tendency to sanguineous congestions, internal and external, which are very little under the influence of antiphlogistic means; the intellectual faculties early developed and of a higher order, great refinement, and delicacy of taste. In such persons there is generally a considerable preponder-

ance of the white tissues, and they are much disposed to scrofulous disease, which is nothing more than a chronic irritation of the white parts and of the organs immediately connected with them.

We may look on the scrofulous diathesis as a condition of the human body which is to a certain degree imperfect, and which is to be attributed to arrest of development. There is a period of foetal life, in which the whole mass of the body consists of white tissues. According as the individual progresses towards maturity the red tissues become more abundant; and when he arrives at maturity of maturation the proportion between the tissues becomes completely altered, the red being now more abundant than the white. But if this process should happen to be arrested, either shortly after birth or during life, we have then an individual of a lower degree of vitality, and approximating to the class of white-blooded animals. That we may reduce the scrofulous diathesis to arrest of development seems to be borne out by other considerations. We find in persons of a strumous diathesis proofs of arrest of development in various parts, so that whether we consider the question as to the development of the whole or of particular parts of the body, the same conclusion obtains. Scrofulous children have large heads, and it has been long known that they are exceedingly subject to hydrocephalus. The great size of the head in this instance is reducible to the principle of arrest of development: and here we have some explanation of the fact of the activity of the intellectual powers in scrofulous persons. Again, scrofulous children have large bellies; and here we have another proof of the arrest of development. In the foetus the belly is larger in proportion than it is in the adult; and if the individual grows up with this predominance, it is a proof of arrest of development. The liver in the foetus is, as you all know, very large. Now it is a fact that many persons of a scrofulous habit grow with this foetal condition of the liver; and, accordingly, we find this organ enlarged, not as the result of disease, but because an equal and proportionate increase of other parts has not gone on: and here we have another fact, confirming the principle of arrest of development. Scrofulous children are observed to have small limbs and contracted chests. Here, too, we again meet with the foetal condition. In the foetus the chest is small and contracted, and the extremities are puny and ill-developed. How beautifully this tallies with the state of the lung at that period of life, when there is very little employment for the thorax, and when the active functions of the lung have not as yet been called into operation. This too, informs us, why it is that such children are so liable to affections of the lungs. We find that scrofulous persons are of a feeble frame, and have weak and flabby muscles; and, in accordance with this, we find on examination that the muscular system to a certain degree represents the condition of foetal life, that the blood is albuminous, and its proportion of fibrin small. We observe that scrofulous children are subject to rickets, and that the proportion of phosphate of lime in their bones is small. Now this is precisely the condition of the bones in the foetus. Thus whether we look to the whole or to particular parts of the body, we find that scrofula is reducible to arrest of development, and that there is not in it any virus, anything particular or specific, as has been erroneously imagined. To these considerations it might be added, that nothing is more common than to see those monstrosities, distinctly referable to *local* arrest of development, occurring in the scrofulous subject; and the statistics of monstrosity show that in this respect the female sex predominates over the male.

There has been much disputation as to the question whether scrofula be hereditary or not. You can easily solve this question, by reflecting on what you have already heard. No doubt it is often so; one or both parents may be scrofulous, and it is natural that a child born of such parents should inherit their scrofulous constitution, as that it should resemble them in features. But, on the other hand, we sometimes find that scrofulous parents beget healthy children. This appears to be an anomaly, but it may be explained by the circumstances of the child having a good healthy nurse, living in pure air, and having comfortable warm clothing, all circumstances calculated to develop the red tissues, and of course strengthen the system. Thus a scrofulous taint may be completely worn out in a few generations. It sometimes, on the other hand, happens that healthy parents may have children of a strumous habit. This, however, is the rarest case, but can be explained by reference to causes which would disturb the balance of development, and a person of an originally sound constitution may, under certain



circumstances become scrofulous. Children may be badly fed and have insufficient clothing, they may be kept confined, and deprived of free air, light, and exercise; they may have an early irritation of the digestive system, from bad and unwholesome food; and in this way may acquire the scrofulous character without any hereditary disposition. Thus we come to the fact, which has been so frequently noticed, that scrofula will often pass over a generation, and that the grandfather and grandson may labour under it, while the son escapes its infection.

It may be objected to this view of the question, that we frequently observe persons of dark hair and robust constitutions falling victims to scrofula. This is certainly true, but it is not on that account an argument calculated to militate against the doctrines which have been propounded on the subject. There are many causes capable of producing this increase in the white tissues, this peculiar state of the constitution, which we call the scrofulous diathesis. Excessive mental or bodily exertion, all the depressing passions, injuries of innervation of various kinds, deprivation of light, air, and exercise, early and continued gastro-intestinal irritation, persistent and exhausting diseases, all these have a tendency to impair the functions of nutrition, and to destroy the balance between the different tissues of the body. If we look to those animals in which tubercles are found, we see that they are often those which have been brought from a hot to a cold climate, and kept in a state of confinement for a long time, and hence it is that we so often find fatal tubercular disease in animals which are kept for the purposes of exhibition. The same liability to tubercle is observed in several of our domestic animals kept in unhealthy situations, and deprived of air, light, and exercise. The truth is, that a combination of such causes will generate scrofula in constitutions which were originally sound and good; but it will occur at an earlier period, and with much more certainty when these causes are brought to act on persons in whom there is an original or congenital predominance of the white tissues. This fact is so well known as to require no further illustration; it is now generally admitted, and you will have many opportunities of verifying it in practice.

Allow me, in concluding this subject, to direct your attention to the following considerations. If we were to connect the phenomena of scrofula with a predominance of the white tissues, it would follow that woman would be more liable to the disease than man. Louis, in stating the relative liability of the sexes to consumption, makes the proportion of males to females as 70 to 92. Cancer, which is also a disease of the white tissues, is, you all know, much more frequent in women than men.

Scrofula, then, to use the term as expressing local disease, seems to have in it nothing of a specific character, or reducible to the supposition of a virus existing in the system; it seems to be a slow irritation of the lymphatic system, occurring in persons who have a predominance of white fluids and white tissues. It would appear, also, that this predominance of white tissues may be either congenital, or it may be acquired, and that, in this case, it is superinduced by various causes, all having a direct tendency to diminish the proportion of red tissues, and lower the vitality of the system. This, which appears to me to be the true meaning of what has been termed the scrofulous diathesis, you will find to be borne out by a multitude of facts, and you will have numerous opportunities in practice of proving the value and importance of this view of the question. In this way we get rid of that mode of treatment which was based on the supposed specific nature of scrofula, and of which the object was the removal of an imaginary virus, and we are guided to the knowledge of a more philosophical and more successful line of practice. We arrive thus at the few and simple, but grand and efficient, principles in the treatment of scrofula; we see that scrofula is in its nature closely connected with the predominance of white and the diminution of red tissues, and we accordingly find that our curative means must embrace every thing calculated to invigorate the system, and add to the existing sum of vitality.—*London Medical and Surgical Journal*, Oct. 4, 1835.

8. *Case illustrative of the influence of the Ophthalmic Branch of the Fifth Pair of Nerves over the Nutrition of the Eye.*—The morbid phenomena observed in the following case, seem to afford additional confirmation of the opinion enter-

tained by physiologists with regard to the influence exerted by the ophthalmic branch of the fifth nerve over the nutrition of the eye; they nearly correspond with those observed by M. Magendie during his experiments on rabbits, and also with those described by M. Serres, as having occurred in a similar case treated by him.

The principal facts connected with the case now to be noticed, are the following:—William Jolly, three years of age, was admitted into St. Thomas's Hospital, under the care of Dr. Burton, on the 29th of January, 1835. The father stated, that the symptoms which his child suffered were preceded, five months previously, by a fit resembling apoplexy; and that upon the child partially regaining his faculties, his right leg and arm were found paralysed. At the time of the patient's admission into St. Thomas's Hospital, these limbs were still almost useless, and the child was unable to stand alone; the sensibility of the paralysed extremities was rather increased than diminished; the head was inclined a little over the left shoulder, in a fixed position, and any attempt to rotate it occasioned much pain. The patient could only rest in a sitting posture, with his body bent forwards, and his head supported on a pillow; and in this constrained attitude he continued five weeks, throughout the day and night, with little change to the date of his death. At the time of his admission, the body was emaciated; the abdomen tumid, and tender on pressure; the complexion pale and unhealthy; the tongue was clean and moist; the pulse at the wrists exceedingly feeble, and the action of the heart over the cardiac region proportionately weak. The child's intellect did not seem impaired; he understood the questions put to him, and his replies were intelligible, although uttered with a little hesitation; the hearing was distinct; the eyes sound, the sight perfect, but the pupils rather dilated.

No other remarkable phenomenon presented itself until about the expiration of a fortnight from his admission; at that date, a swelling and tenderness of both parotid glands, with erysipelas of the left cheek, and a small speck situated about the centre of the left cornea, appeared in quick succession. When the speck first made its appearance, there was little or no redness of the conjunctival vessels, no intolerance of light at any period; the iris was not apparently inflamed, and the movements of the left eye-ball corresponded with those of the right eye. The speck rapidly extended, and the whole surface of the cornea became opaque. The conjunctiva became more vascular, and its surface was moistened with a semi-purulent fluid; but in the course of seven days from its first appearance the secretion was much diminished, and the surface of the conjunctiva had become almost dry. Ulceration through the cornea advanced; and within the laminae of the inferior half of its disk a purulent fluid had collected, which eventually escaped through the perforation, and projected in the form of a brown-coloured conical scab, about one-eighth of an inch from the surface of the cornea. The globe of the eye was now discovered to have entirely lost its perception of external stimuli; no symptoms of uneasiness, and no movements of the eye-lids, followed, when the globe was touched in the first instance by the finger, nor when subsequently touched with lunar caustic. The child could, however, still move the eye-lids, and their movements corresponded, as before remarked, with those of the other eye. The sensitiveness of the left cheek was natural; and from the desire which the child manifested for strong beef-tea, in preference to weak mutton broth, it was inferred at least one of the gustatory nerves was not paralysed; but owing to the distress exhibited by the patient whenever any attempt was made to move him, and the difficulty of making him comprehend the necessary questions, it was not ascertained whether the left nostril and left half of the tongue were paralysed or healthy.

The ulceration continued to progress from the first appearance of the speck about nine or ten days; the eye then burst, and the humours were discharged. A considerable hæmorrhage also followed, and an eruption of petechiæ was then for the first time noticed on the lower extremities. All the symptoms now became rapidly worse. In the course of a day hæmorrhage followed from the bowels, the puerpera ascended over the trunk and upper extremities, and the child sunk exhausted, but only imperfectly comatose, about twenty days after the first appearance of the speck.

Upon examining the contents of the cranium, thirty hours after death, the dura mater was found to be marked with petechiæ over the upper circumference

of the cerebrum; and a scrofulous tubercle adhered, or had grown out of the anterior superior surface of that portion of the dura mater which forms the tentorium; in other respects this membrane was healthy. The arachnoid also seemed perfectly free from disease, and the brain firm, but not hard. A small quantity of a thin fluid, tinged with blood, was effused between the arachnoid and pia mater, at the upper circumference of the brain. A little fluid was found in both the lateral ventricles, and a loose coagulum of blood in the posterior cornu of the right ventricle. About f. 3j. of loosely coagulated blood was also extravasated between the convolutions of the left hemisphere of the cerebrum. Many small scrofulous tubercles were discovered in the cerebrum, about the size of peas; two others much larger, about three-quarters of an inch in diameter, were also found in the cerebellum; and one of the same dimensions nearly was situated about the posterior inferior portion of the pons varolii. The circumference of this tubercle was placed within the distance of one line from the apparent origin of the fifth nerve, on the left side of the pons varolii. The brain was carefully examined by Dr. Barker and Dr. Burton, but no other disease could be discovered either in the course of the fifth nerve, on the same side as the tubercle, or in the left cavernous sinus, or in the left orbit. As, however, the phenomena attending the ulcerative process in the above case nearly corresponded with those described by M. Magendie and M. Serres, to have followed the destruction of the healthy functions of the fifth nerve in their cases, we may ascribe the corresponding set of phenomena observed in the eye of W. Jolly to a similar lesion; and in the absence of direct evidence to the contrary, it may be attributed with much probability to the morbid action which occasioned the growth of the tubercle, noticed immediately beneath the apparent origin of the fifth nerve, on the left side of the pons varolii.

The cachectic condition of the fluids and solids of the body was well exemplified by the joint existence of puerpera and scrofulous tubercles to a remarkable extent. Capillary extravasation was observed in the three great cavities of the body, the cranium, chest, and abdomen; and all the principal organs were in a state of scrofulous derangement. The tubercles were as generally distributed in the case of W. Jolly, as they appear to have been in the case described by Mr. Earle, in the third volume of the *Medico-Chirurgical Transactions*. The abdomen, in particular, presented the characters noticed by Dr. Baillie (page 208, vol. 1, Wardrop's edition,) and the peritoneum and mesentery were thickly studded over with small scrofulous tumours.

The scrofulous habit predominated throughout the family. Of six children, including the patient, William Jolly, five had died about the age of 3 years; the sixth is not likely to thrive; and the mother died, after a protracted illness, in child-bed.

The treatment adopted in the above case was essentially palliative. Temporary alleviation only of the symptoms was derived from the use of remedies; and at the admission of the patient little hope was entertained of his recovery.—*London Medical Gazette*, June 6, 1835.

9. *Case of Protracted Abstinence from Food*.—The subject of this curious case is a woman, æt. 39, named Engeltje Van Der Vlies, resident at Pünacker: In her fifth and sixth years she suffered from worms and frequent convulsive fits; she, however, got rid of the worms, but remained in a debilitated condition for several years; in fact, up to her eighteenth year. At this time Napoleon's conscription carried off her brother, which so affected her, that from that time she again became a prey to frequent convulsive fits. At subsequent periods she was treated for hysterical affections and chronic inflammations of the intestines: her appetite was very small. It remained so until May, 1818, when she began to lose the use of her feet, refuse nourishment, and take nothing but drinks, and chiefly of buttermilk: medicines were always rejected immediately after being swallowed. In 1820 the respiration became abstracted. In March, 1822, up to which time the hysteria had been excessive, enema was administered, which brought away some fecal matter, after which time no feces or urine were ever passed, with one exception. She also gradually forbore from all fluids, except to rinse her mouth from time to time. In 1824 and 1825 she had repeated attacks of intestinal inflammation. In October of the latter year she passed, with dreadful pain and

violent spasmodic respiration, a small quantity of urine and a little stool: and in 1826, again, a little urine, which was tinged with blood. Since the 10th of March, 1822, she has therefore had only one motion, and only twice passed a remarkably small quantity of urine. Her spirits were always inclined to flag, and particularly latterly, when doubts were cast upon the truth of her history. She is of low parents, and has always, until very lately, been a servant in various families.

On the 11th Nov. 1826, she was subjected for one month to the scrutiny of a committee appointed by the Provincial Commission of Physicians established at the Hague. During the whole of this period she took no food of any kind whatever. Her occupations consisted in knitting, sewing, cleaning vegetables, and reading. Her mouth was usually rinsed with water, with tea, and twice with buttermilk, the quantities of which were measured before and after rinsing. She made no water, and passed no fæces during the whole month; no air was passed per anum, but she eructated very much. She got up at nine, A. M., and went to bed at ten or eleven o'clock, P. M.—*Ryan's London Med. & Surg. Journal*, 22 Nov. 1834.

10. *Ulcer of the Stomach Cicatrized*.—M. CRUVEILHIER communicated to the Anatomical Society at their session of the 1st of Sept. last, an example of this. The case was perfectly analogous to those already presented to the Society at different times. M. Cruveilhier had at an early period diagnosticated ulcer of the stomach, and on several occasions he has been able to pronounce with certainty on the existence of this affection. The following are the chief symptoms upon which he insists. The patient has, almost always, vomiting of blood; he recovers, and has a relapse in a short time. The digestion is difficult, the abdomen is the seat of colicky pains; he also passes blood by the rectum, and the region of the stomach is affected with a gnawing kind of pain, but we perceive no tumour. A symptom upon which M. Cruveilhier lays a good deal of stress is the existence of a *dorsal stitch* (*point rachidien*), that is to say, a severe and continued pain near the end of the dorsal vertebrae behind; this is a phenomenon which he has very frequently met with. The symptoms go on increasing, and the patient dies from an abundant hæmorrhage. The professor considers this as a disease by no means so rare as is imagined.

11. *Case of Pulmonary Tubercles, fatal in the first stage of the Disease*. By Prof. ALISON.—The following case is one of tubercles in the lungs fatal in their first stage, when hardly any of them had suppurated, and agrees in its leading features with several others which were formerly laid before the Society, (see their Transactions, vol. ii. p. 287,) as being, in my judgment, of peculiar importance in reference to the question, whether the deposition of tubercles is, in any case, a result of inflammatory action. It is a case of a young man engaged in a laborious occupation, by which his strength and breath are daily tested; who enjoys good health up to a given time, when he is exposed to the usual causes of inflammation, in a high degree of intensity; who is seized with cough, with *dyspnœa*, and the usual symptoms of inflammation within the chest, and is relieved by the usual remedies; he is again repeatedly exposed to the same causes; his symptoms, which had never entirely left him, are aggravated, and from this time these symptoms, and particularly the *dyspnœa*, continue unabated, and even progressive until his death. Now, on dissection, while there are the usual marks of inflammation on the *pleura*, the morbid appearance in the substance of the lungs,—the only appearance which is adequate to explain the continually progressive, and ultimately fatal *dyspnœa*, is a great tubercular deposition; the tubercles so numerous, in so early a stage, and in so uniform a state, that they must have been formed subsequently to the well-marked exposure to cold, and the accession of febrile and inflammatory symptoms; and the other appearances such, that, unless we suppose the repeated application of the causes commonly producing inflammation of the chest, to have excited the growth of the tubercles, we cannot understand how they should have produced the fatal illness: and must regard the rapid growth of the tubercles, and the frequent application of the causes, as well as the constant presence of the symptoms of inflammation, as a merely accidental coincidence.

It would, indeed, be absurd to assert, that an attack of inflammation is the only condition necessary to the development of tubercles in the lungs. It is plain that some additional predisposing condition must be present, probably in the nature of the blood, perhaps in the structure of the lungs, to determine this peculiar effect to result from the inflammatory attack. But, whatever be the nature of the predisposition, we have good reason to believe that, as existing *per se*, it is not necessarily followed by the development of tubercles; and the principle which it is practically important to establish is merely this, that, by an inflammatory attack inadequately opposed, a tendency which was previously compatible with the healthy exercise of all the functions of the lungs,—which was imperceptible, and, for any thing we can learn to the contrary, might have remained inert,—may be so excited and exasperated as to lead to such a deposition of tubercles, as may be inevitably fatal within a few weeks.

Gilbert Farquhar, aged 22, admitted 23d August, 1834,—a sailor,—stated distinctly that his health had been very good till fourteen weeks before admission,—when, being on the American coast, he had been much exposed to cold and wet when exhausted by fatigue. He had then febrile symptoms, cough, pain of chest and *dyspnœa*, and was bled with relief. Seven weeks before admission, his vessel had left America for England, and, in consequence, as he believed, of fresh exposure and exertion during the voyage, his complaints were aggravated,—the *dyspnœa* became more urgent,—the pain of chest more general and severe, the cough increased, and the expectoration became more viscid and opaque, though never discoloured with blood. He then became somewhat emaciated, his febrile symptoms took somewhat the form of hectic, and his feet swelled.

Seven days before admission he had landed at Leith, and been bled, and taken medicine without relief;—he had also got drunk, and been out at night and exposed to cold, within that time.

On admission he had pretty severe and very frequent cough, with scanty, mucous, slightly discoloured expectoration, pain of breast increased by the cough, difficulty of lying on either side; his respirations were 48 in the minute, heaving and oppressed; his pulse 114, soft; skin rather hot; face flushed and somewhat livid; tongue slightly furred, moist, with thirst.

The chest heaved imperfectly on both sides on inspiration; the sound on percussion, pretty natural anteriorly, was dull on both sides in the posterior and lateral parts.

The sound of respiration was harsh and bronchial, and attended with subcrepitous râle, generally over the chest, and there was distinct resonance of the voice in the upper part of both sides.

His urine was scanty and somewhat coagulable by heat.

He had leeches and a blister, and was put on the use of calomel and opium, and digitalis. His cough abated, but his pulse became more frequent and feebler, his tongue dry and florid, his breathing very frequent, and he became delirious with tendency to stupor, rallied a little under the use of wine, but sunk finally on the 26th,—the fourth day after admission.

*Dissection.*—The *pleura costalis* and *pulmonalis*, on both sides of the chest, were firmly and generally united by lymph highly organized; in the lower and lateral parts of the chest, this substance was nearly one-fifth of an inch thick, and part of it had a somewhat fibrinous appearance. When freed from their adhesions, the lungs did not collapse, they felt firm, and on being cut into were found very uniformly thickly studded throughout their whole substance with small tubercles, of the size of pretty large pin heads; the only portion of lung free from this deposit was a small part at the lower end of the right lung, which was very vascular and somewhat dense. The portions of lung immediately adjoining the tubercles appeared very vascular, but in general not condensed. In the upper part of the right lung were two or three very minute cavities.

There was a considerable quantity of serum in the *pericardium*, but no disease of the heart.

The liver was much enlarged, with hypertrophy of its gray matters, and the cortical portion of the kidneys was slightly affected with a similar deposition of grayish lymph.

contains some highly interesting observations by Dr. Wagner, on the communication of malignant pustule from diseased animals to the human species. Dr. Wagner having heard that on the 22nd July, 1834, two persons in the village of Striesa, in Prussian Saxony, had died suddenly—that several others had fallen sick, and that in one farm seven head of cattle, with several pigs, had burst, immediately went there, where he collected the following details respecting the event.

On the herd of cattle returning from pasturage, July 13th, the bull fell suddenly prostrate, and was unable to rise again. At first it was attributed to a simple wound in the back-bone; he was immediately killed, and two peasants, Stack, the gardener, aged 40, and Zeinz, the vine-dresser, aged 30, both robust men, and in excellent health, skinned, cut up, and partook, with several others, of the flesh of the animal as food. Some days afterwards, several other animals belonging to the same farm fell sick in the same manner, shared the same fate, and their flesh was used as food by the same persons. All of them, however, quickly began to complain of uneasy sensations, heaviness in the precordial region, occasional pains in the abdomen, vertigo, &c., especially Stack and Zeinz, who had not only partaken of the flesh of the infected animals, but had handled them, and, in so doing, had been wounded in the hand.

Several more animals suddenly burst on the 15th and 18th. On examination, the abdomen was found inflamed, the spleen gangrenous and putrescent, consisting but of a membrane in form of a sac, containing a thick, black liquid; in several places under the hide, especially about the neck, were œdematous tumours. No doubt could now exist, that the malady was the true carbunculous affection. M. Wagner gives it the name of "gangrene of the spleen, (*Milzbrand*.)" from the state of that organ as found in all the infected individuals examined; and to the septic humour which appears to generate the malady, "virus of gangrenous spleen, (*Milzbrandgift*.)"

On the 19th, the gardener Stack, though suffering for some days, endeavoured to walk a distance of three leagues, which, with the utmost difficulty, he accomplished. After having endeavoured to recruit his feeble state with a draught of malt liquor, he made an effort to return, but was seized with vomiting, pains in the abdomen, and fell prostrate on his back. He was carried home; icy coldness of the extremities, thence to the trunk, supervened; diarrhœa of black liquefied blood; convulsive movements of the head and limbs; legs blue and livid; nose sharpened; eyes hollowed; with great suffering in the abdomen, and repeated vomitings; but death relieved him on the 20th.

On the same day, the widow Gaertner, who had eaten of the meat, was affected much in the same manner; a black pustule also had appeared on one of her thighs. She was found dead in her bed on the following day, with a child still sleeping beside her and in perfect health. On the 22nd the decomposition of these two bodies was advanced nearly to liquefaction, and, therefore, precluded examination.

Eight other persons who had either come in contact with the infected animals, or had eaten of their flesh, were attacked with the epidemic on the 22nd of July, and a ninth on the day following. The general symptoms and sufferings were nearly the same in all. There was dryness of the skin; small, febrile, scarcely perceptible pulse; tongue not loaded; eyes natural, and body red and warm; no delirium. Some experienced a sense of pressure at the epigastrium, which was not, however, increased on drawing a full breath; most of them had a sweetish taste in the mouth; all had inappetence; two only were affected with vomiting; none of them had meteorism and tension of the abdomen. Some suffered anxiety, especially the vine-dresser, Zeinz, who, with the exception of a sensation of numbness in the affected thigh, did not complain of any more pain than the others. The anthrax in this individual had no inflammatory circle; it was surrounded by an induration, was insensible to the touch, of an oblong form in the direction of the limb, and extended in depth to the bone. The pustule commenced in a small spot the size of a pin's head, and extended without causing any pain, and had become entirely dry.

The second patient, who had a pustule on the thumb, likewise had no general symptoms; but he had a sensation of burning, with tumefaction and erysipelatous inflammation of the affected hand, which extended to the forearm, although the anthrax was scarcely the size of a ten-cent piece.

With the exception, also, of a young woman, who ate of the infected meat,



and in whom a pustule formed on the right forearm, with tumefaction and inflammation extending to the elbow, the other patients had no pustular eruption.

As the malady with most of these persons had already been of some days' duration when M. Wagner arrived, he found no indications requiring vomits. Those who were yet free from anthrax, he administered the most simple remedies; cataplasms of linseed and flour of bran in white wine vinegar applied to the præcordial region, infusion of fennel, or simply water acidulated with white wine vinegar, to promote and sustain a moderate perspiration; abstinence as far as possible. With those in easy circumstances, and with those, also, in whom carbuncles were developed, a more active treatment was necessary. An incision cross-ways was made in the pustules, and, with respect to Zeinz, to the depth of half an inch, cauterised, and the wound sprinkled with strong caustic potass. During nearly the whole operation he was insensible, but was at length painfully conscious of a pricking and burning sensation; the gangrenous scab, which was hard and dry, softened and sunk; a cataplasm of linseed and powdered oak bark in white wine vinegar was applied; small doses of camphor, and a strong decoction of quinquina mixed with a little of Hoffmann's anodyne liquid mineral.

All the infected were better the next day (24th) except one, an old woman, with a pustule on the thumb, which had been cut and cauterised. Every symptom aggravated; the whole arm swelled and inflamed to the shoulder; the forearm covered with reddish-blue vesicles; face red and burning; intense fever; diarrhœa; extreme prostration; skin dry and hard; sweetish taste in the mouth. Considering this case as altogether hopeless, M. Wagner only applied a cataplasm of new cheese to the wound.

In place of the gangrenous scab on the thigh of Zeinz there was a hollow, half an inch deep, circular and blackish, edge narrow and red; fever gone; appetite, strength, and spirits returned. This rapid amendment was preceded by a general and profuse sweat of infectious odour. The wound was sprinkled with quina and caustic potass, dressed with Baume Arcæus, and covered with the vinegared cataplasm; internal treatment as before.

29th. Sensibility restored to the infected member, but the gangrenous hollow was of twice the depth, and no separation could be discerned between the unhealthy and the sound. It was now dressed with powdered quinquina, balsam of Peru, brown ointment mixt with myrrh and camphor, and again covered with the vinegared cataplasm.

Aug. 1st. The gangrenous sloughs were separated with the bistoury; the wound was now three inches in length, two and a half in circumference, and three quarters in depth, of a clear red, and secreting laudable pus.

5th. Begins to be covered with fleshy pimples and granulations of good appearance.

11th. The whole excavation filled with them; occasional torpor in the feet, followed by a pricking sensation.

14th. Cold tumefaction of the integuments of the limb extending to the abdomen. Application of bags of warm bran; the fleshy pimples have pustulated to such a degree as to require the use of the caustic potash.

18. Cicatrisation of the wound beginning, and will, no doubt, be soon completed. The old woman, whose case had been considered as utterly hopeless, on the 25th, two days afterwards, rallied considerably, to the great astonishment of M. Wagner. No critical perspiration had here supervened, but the diarrhœa was so excessive that the stools were passed without consciousness. The gangrenous pustule was suppurating; the vesicles on the fore-arm had sunk, and the swelling subsided from top to bottom. Same treatment external and internal as in the preceding case. The general state of amendment proceeded, and so rapidly, that on the 29th of July she could walk above a mile. The local affection was more tardy; the pustule extended all round the thumb to the back of the hand; the scab, though superficial, was hard, horny, dry, and black, and when a part of it detached itself a few days afterwards, the suppurating surface beneath emitted a fœtid odour. It was dressed with powdered quinquina, and shortly afterwards bore a favourable appearance, and thus continued to do; and on the 4th Sept. the cure was completed.

On the 6th of August two more patients presented themselves, although eight days had elapsed, during which no case of infection either in man or brute had oc-

curred, and every precaution was in use to prevent the spread of the epidemic. The persons affected were two fellow-servant women on the same farm, the one 26, the other 50 years of age; and though they had been many times in contact with the infected animals, they had never eaten of their flesh. The elder woman it appears had, while standing beside the infected old woman above mentioned, been stung by a fly in the inner side of the left arm. The little puncture became painful, swelled, and inflamed, and at length assumed the appearance of a dry and livid pustule. The younger woman could not give so decided an origin to the pustule which formed on the outer side of the right arm; it was surrounded with gangrenous vesicles, swelled and inflamed from the elbow to the shoulder; but it is necessary to state, that the hide of an infected animal had been found in her chamber. Might not this have been the origin? Might not some particles of the flesh or cellular tissue have been still adherent to the skin, and in its recent state have attracted the flies, whose puncture would then most certainly transfuse the virus? Such facts have been before observed, and examples of them are cited by Bertrandi and Monteggia.

Recourse was had to the same internal treatment as in the preceding cases; but as it was too late to incise the carbuncles, and M. Wagner having found that cauterisation after incision extended the gangrene, he only applied cataplasms of new cheese, or of bran and linseed. The internal remedies were also soon changed, and a beverage of curdled milk substituted, mixed with water, or an infusion of fennel.

The young woman's fever was of an inflammatory character; and pains in the chest supervening she was bled in the arm. The state of the pustule rendering the application of caustic potass necessary, it was tried, but soon removed, the pain arising from it being too excessive to be borne.

On the 13th of August, after profuse perspiration, the general symptoms, and also the swelling and inflammation around the pustules, subsided with both the patients.

Three weeks after the first appearance of the epidemic, another and fatal case of infection presented itself.

A young man, 20 years of age, servant on the same farm with the females above mentioned, had not only handled infected animals, but had eaten of their first flesh. Nevertheless, he continued in good health for a fortnight after the appearance of the malady; he was then seized with all its symptoms; a pustule on the forepart of the left arm spread an inch and a half in two days. Profuse sweat ameliorated all the symptoms for a short space, but on the 18th they returned, and with such violence, that on the evening of the same day he breathed his last.

In two villages adjacent to Strisa a few isolated cases of the infection were at the same time observed. Four men, in the prime of life, who had not only been in contact with infected animals, but had partaken of their flesh as food, were seized with all the symptoms of the epidemic, but recovered in the course of three weeks.

The following experiment is noticeable. Some fat of an infected animal was melted and thrown to two pigs, two dogs, and two cats; all of them burst while rolling on the grass, which they appeared to do for relief.

From the foregoing facts the author draws these conclusions:—

1st. That the greater or less violence of the malady depends not so much on the presence, number, and size of the pustules, as on the concomitant fever; the pustules being but a product or symptom of the malady, and may be altogether wanting, and the latter still exist.

2nd. The carbuncular fever, or gangrenous splenitis, with or without pustules, does not propagate itself by means of miasma in the air, but communicates itself by the ingestion of the flesh of infected animals, by contact with them, and by cutaneous absorption. The animal virus, which appears to be the principle of the malady, is fixed, unalterable, not to be decomposed by any process of cooking, as the foregoing statements prove.

3d. Whether the pustules be excised, cauterised, or not touched at all, the concomitant fever and inflammation proceed in their course, and the duration of the treatment is in no degree abridged; but experience demonstrates that violent measures oppose the curative efforts of nature, and may prolong the malady. If the infection be received internally, excision and cauterisation are useless; if on the

exterior surface they are only useful in the first state of the pustule, when yet very small; and it is rare that medical assistance is then sought. The topical remedies which proved most serviceable to M. Wagner were, warm emollient cataplasms, or those of new cheese, powdered quinquina, alone, or mixed with powdered charcoal. It is doubtful whether the administration of quinquina and camphor internally be really useful. But, under whatever treatment, the pustule remains ordinarily from four to six weeks; when the infected die it is frequently during a febrile paroxysm. In a slight attack, a vomit has often proved completely efficacious. Milk drunk in great quantity soon after the ingestion of the infectious substance is of use by provoking sickness and vomiting.

M. Wagner attributes the frequency of carbuncular affections, so observable in summer in the Circle of Schweintz, where he practises, to the great number of pools and ponds of stagnant and filthy water in the vicinity of the Elter, and which evaporate during the great heats.—*Gazette Méd. de Paris*, 28 Feb., 1835.

13. *Eruption caused by the Internal Use of Copaiba*.—Dr. THOS. T. HEWSON, of this city, in a paper in the N. A. Med. and Surg. Journ. v. 72, called the attention of the profession to the occurrence of an eruptive disease resembling rubella, in persons who had taken the balsam copaiba. The following interesting case of this description of eruption is recorded by Mr. RALEIGH in the *India Journal of Medical Science*, for April, 1834. Mr. H. æt. about 30, was taking for the cure of a virulent gonorrhœa, a mixture composed of balsam copaiba, cubebs, and nitric æther: after a week he felt as if he had taken cold, the eyes were watery and throat a little sore, for two days, when an eruption exactly resembling measles made its appearance on the face, extremities and body generally; but particularly thickly over the nates and shoulders. The mixture was discontinued, and as he had no febrile symptoms, only a mild laxative was prescribed every morning. After four days the eruption flattened down, and left only copper coloured patches, which in four days more were extinct; no disquamation of cuticle took place; the gonorrhœa continued unabated, and he recommenced copaiba mixture without its occasioning a return of the eruption. He is positive he had measles when a child.

Mr. Raleigh has recorded a second case, in all respects similar to the above, in the same journal for June, 1834.

14. *Case of Chronic Cough, with Remarks*. By ROBERT J. GRAVES, M. D., (extracted from the Clinical Lectures delivered at the Meath Hospital during the session of 1834-5.)—Allow me to direct your attention to-day to the case of J. Jowson in the chronic ward, labouring under an attack of exasperated chronic bronchitis, a disease which derives its chief importance from the circumstance of being exceedingly common. There is no morbid affection of the system more frequent or more general than chronic bronchitis, it is of every day occurrence in dispensary practice, it is one of those cases which you will be constantly called on to treat, and hence the study of its nature and treatment has strong claims on your attention.

This man is, as you have seen, about the middle age in point of years, but he is old in constitution. In this country you will find most of the labouring poor exhibiting symptoms of premature old age, the combined result of poverty, intemperance, and hardship. Obligated to work in the open air in bad weather, they get catarrhal affections, which are renewed by repeated exposure, and prolonged for want of proper care. The natural effect of cold frequently renewed and generally neglected is, that a tendency is produced in the bronchial mucous membrane to become congested and inflamed with facility, until at length the derangement becomes permanent, and the mucous membrane no longer returns to its normal and healthy condition during the intervals.

The secretion of the mucous membrane of the bronchial tubes, in a perfectly healthy person, is almost entirely destitute of matter to be expectorated. In the normal state, the secretion of the bronchial mucous membrane, though continually going on, scarcely ever exists in superfluous quantity, for a certain proportion of it is carried off by exhalation or absorption; *a perfectly healthy person, breathing a pure air, has no excretion whatsoever*. The moisture secreted by his bronchial mucous membrane contains nothing that the expired air cannot carry away in

vapour, without leaving any residuum which gradually accumulating would at length require to be expectorated. In this respect the bronchial mucus in the healthy state differs from the mucus of other membranes of the same class; but disease destroys this beautiful provision, and gives rise to a secretion of morbid mucus which cannot be gotten rid of in the usual way, and which must, therefore, be expectorated. Hence it is, that persons in whom a chronic state of congestion of the bronchial membrane has been generated by repeated colds, have a secretion of superfluous matter always going on, and are constantly expectorating. This may continue for several years without much inconvenience; the principal annoyance the patient suffers is in getting up the phlegm in the morning. At this period there is always an accumulation of fluid in the lungs after the night, during which the cough is less frequent, and expectoration less copious.

Here let me remark that although a person may cough violently during his sleep, he never expectorates. Expectoration is accomplished by the attention being directed to the chest, by an act of volition being put in force, so as to cause a constriction of the bronchial tubes and generate a current of air of sufficient strength to expel the mucus. To effect this, the mere act of coughing is not sufficient, and, consequently, *we do not expectorate during sleep*; for this purpose it is necessary for the patient to be awake.

Frequently recurring catarrhal affections, besides generating a state of chronic derangement of the mucous lining of the lungs, have a necessary tendency to produce other bad effects. Dyspnoea is an ordinary attendant on chronic bronchitis, the vesicular tissue enfeebled by disease loses its natural elasticity, and hence the act of respiration is performed weakly, and with considerable difficulty. In addition to this, the stress thrown on the air-cells and passages, gives rise to emphysema and dilatation of the bronchial tubes.

When this man came into the hospital, he was labouring under an exacerbation of his chronic bronchitis from a fresh attack of cold, he also suffered from dyspnoea with a tendency to emphysema, and had been much debilitated by the frequent recurrence of his pulmonary symptoms. I do not intend to make any particular observations here on acute bronchitis supervening on chronic; it is a dangerous disease requiring prompt and careful attention. I merely refer to this case to point out the remedies which were employed and the principles which guided me in their selection.

At the time of our patient's admission, the fever which accompanied the acute attack had subsided. His pulse was tolerably quiet, neither did he present any derangement of the heart's action, and so far had escaped one of the consequences of chronic disease of the lung, namely, dilatation and hypertrophy of the right ventricle. Observe, the most important features in this case, so far as treatment is concerned, were these; there was no general inflammatory condition of the system present, he had neither hot skin, nor quick pulse, his expectoration was copious, the chest sounded well on percussion, and the only stethoscopic phenomena observed were extensive minute and moist bronchial râles. The case then stood thus, extensive bronchial inflammation with copious expectoration, unaccompanied by fever, and occurring in a debilitated constitution. All weakening measures were therefore contra-indicated. It is true that the man had dyspnoea, and complained of tightness across his chest, circumstances which might appear to demand the use of the lancet or leeches; if these means had been employed, he would certainly have experienced some relief; but in the course of a few hours the symptoms of distress would have returned, the weakness superinduced by bleeding would give rise to increased secretion into the bronchial tubes, and the patient would be worse than before. Under these circumstances we refrained from using the lancet or leeches, but, deeming it advisable to get rid of the last traces of inflammatory action, we gave the following mixture:—*R. —Mistura amygdalarum, ʒiij; Nitratis potassæ, ʒ ij; Tartar. emetici, gr. j; Tinctur. opii camphorat. ʒ ss; Ft. mistura pectoralis, sumat cochleare j. amplum omni horâ, vel urgente tusse.*

In explaining the rationale of this mixture, it is hardly necessary for me to state why the almond emulsion was used. In all cough bottles it is of importance that the basis should consist of some mild mucilaginous fluid, and hence we generally employ for this purpose demulcent syrups, emulsions made with olive oil, spermaceti, or almonds, or decoctions of mucilaginous seeds and roots. With the al-

mond emulsion we combined tartar emetic and nitrate of potash, both antiphlogistic remedies, and calculated to act with peculiar effect in relieving congestion of the bronchial mucous membrane. You are aware that nitrate of potash in large doses is a powerful antiphlogistic, and you have seen it prescribed with excellent effects in cases of acute arthritis treated in this hospital. Nitrate of potash, when given to the amount of two or three drachms in the day, combined with two or three grains of tartar emetic, is, next to bleeding, the most efficient means we possess of reducing inflammatory action, and were I to be asked what remedies I should employ in combatting inflammation, supposing there were no such things as the lancet, or leeches, or calomel, I should certainly say nitrate of potash and tartar emetic. When given in small doses this combination proves also extremely serviceable in less severe cases, and it was on this account we gave it in the present instance. To this we joined the camphorated tincture of opium, convinced that its stimulant properties could not prove injurious when combined with antiphlogistics, although it would be improper to administer it alone. Experience has taught that when camphorated tincture of opium is given in cases of chronic cough with expectoration, it will (if much inflammatory action be present) check the expectoration and bring on dyspnoea. But when combined with nitrate of potash and tartar emetic, its bad effects are corrected, while its sedative influence remains unimpaired.

In addition to this, I ordered the nitro-muriatic acid liniment to be rubbed over his chest. This liniment we are much in the habit of prescribing where a rubefacient is required. It is made by diligently mixing one drachm of nitro-muriatic acid and one ounce of lard, by means of a wooden or ivory spatula. When this mixture is complete, two drachms of spirits of turpentine are added; these ingredients soon separate from, and mutually react upon, each other, so that the liniment is spoiled: we, therefore, never make it in large quantities. As his bowels were constipated, I gave him a pill composed of three grains of blue pill, quarter of a grain of colchicum, two grains of scammony, and half a grain of capsicum. Colchicum acts on the biliary secretion, particularly when combined with blue pill, and hence promotes the general action of the intestines. With these I combined a little capsicum in consequence of the patient's complaining of being annoyed by constant flatulence. It is a curious fact that every chronic derangement of the bronchial mucous membrane is accompanied by flatulence. Whether this arises from the irritation of the bronchial membrane spreading by continuity of tissue, and rendering the tongue foul, the stomach weak, and the digestive function unnatural, or whether the derangement of the bronchial mucous membrane, and the imperfect performance of the function of respiration, cause the secretion of air from the lungs to be diminished, in consequence of which air is secreted from the intestinal mucous membrane by a vicarious action, I cannot exactly state, but I think the latter hypothesis not very improbable. It is well known that the mucous membrane of the stomach and bowels enjoys the power of secreting and absorbing air; it secretes carbonic acid, nitrogen, and also other gases which seem peculiar to it, such as sulphuretted hydrogen. I am not aware that there is any distinct evidence that the last named gas is ever secreted by the bronchial mucous membrane, but as there are some cases in which the breath is remarkably foetid, I think it remains for future experiments to decide whether it may not be so under certain circumstances. It is, however, by no means improbable, that when an adequate cause produces considerable derangement in the respiratory function, and alters the nature of the aerial secretion from the lung, the mucous lining of the stomach and bowels may take on a vicarious action, and secrete gases analogous to those which in the normal state are secreted by the mucous membrane of the bronchial tubes. I think I have seen some well marked examples of this translation of the function of secreting air from the pulmonary to the intestinal mucous system in cases of spasmodic asthma and hysteria. I have seen patients who, previously to an attack of asthma, had no symptoms of flatulence, and observed that accordingly as the disease proceeded and the derangement of the respiratory function increased, the bowels became distended with air. In hysteria, also, where derangement of the respiratory function is plainly denoted by the heaving of the chest, sighing, and dyspnoea, there is generally enormous and sudden inflation of the belly, loud borborygmi are heard, and there is a constant disengagement of air upwards and downwards.

But to return to our patient. After we had removed all traces of active inflammation, and the case had been reduced to one of ordinary chronic bronchitis, we changed his cough mixture for the following:—*R. Misturæ ammoniaci*, ʒvj.; *Carbonatis sodæ*, ʒss.; *Tincturæ opii camphoræ*, ʒss.; *Tincturæ hyoscyami*, ʒj.; *Vini ipecacuanhæ*, ʒij.; *Fiat mistura pectoralis*, sumat cochl. j. amp. pro dose.

The carbonate of soda was given with the view of removing some acidity of stomach which he complained of; besides, it is a fact that alkalies produce good effects in many cases of pulmonary irritation, as must have struck you from witnessing the success of the popular remedy for whooping-cough, recommended by Mr. Pearson. You will observe, gentlemen, how very different this cough mixture is from the former; it is much more stimulating, and at the same time more powerfully anodyne, the opium being here less diluted, and being aided by henbane; the addition of ipecacuanha was intended to prevent a too speedy action on the part of the other ingredients, in diminishing the expectoration and constipating the bowels.

I wish to call your attention to the plan of treatment, not with reference to this case alone, but with respect to chronic bronchitis in general. We first gave a combination of nitrate of potash and tartar emetic, with the view of removing any remaining traces of inflammatory action; we next prescribed the *misturæ ammoniaci* with camphorated tincture of opium and carbonate of soda, &c., and, finally, when the cough became entirely chronic, we gave the compound iron mixture with tincture of hyoscyamus in draughts, and an electuary consisting of sulphur, cream of tartar, and senna. I need not repeat what you will find in every treatise on *materia medica*, with respect to the use of the compound iron mixture; it is not to be given until all traces of fever and local inflammation are removed, and never until the secretion from the lungs is copious and expectoration free. In such cases the patient is generally weak, and the inordinate secretion adds to his debility. Here the compound iron mixture proves extremely serviceable, but you should commence its use with caution. Some persons are in the habit of giving it in doses of half an ounce two or three times a day; this I never do; I begin with a drachm twice or three times a day in an ounce of spearmint water, and add from half a drachm to a drachm of tincture of hyoscyamus. The dilution with mint water, and the addition of tincture of hyoscyamus, render it more valuable, by causing it to be more easily borne by the system, and less likely to be rejected by the stomach.

Let me now explain my reasons for ordering the following electuary:—*R. Electuarii sennæ*, ʒij.; *Pulveris supertart. potassæ* ʒj.; *Sulphuris loti*, ʒss.; *Syrupi zingiberis*, q. s. *Ut fiat electuarium*, sumat cochleare, j. parvum bis vel ter quotidie. In the first place, when giving any stimulant medicine internally, it is essentially necessary to attend to the state of the bowels; in the next place, keeping the bowels freely opened has a very remarkable effect in diminishing inordinate secretion from the bronchial tubes. Where the patient's strength can bear it, I often diminish supersecretion from the lung by strong hydragogue purgatives, as you saw in the case of a patient in the chronic ward, who had orthopnoea and such an excessive secretion into the bronchial tubes as to threaten suffocation. The patient being a strong man, and having no symptom of intestinal irritation, I prescribed a bolus, composed of a grain of elaterium, two of calomel, ten of jalap, and five of scammony, forming a powerful hydragogue purgative, which produced several copious fluid discharges. The man bore its operation well, and I repeated it in two days with the most decided benefit; indeed he experienced from it more complete relief than he would have done from bleeding, blistering, or any other remedial means. In some cases of bronchitis with excessive secretion, you will be able to produce very striking effects by the use of hydragogue purgatives; this, however, will require both judgment and discretion, and it should be borne in mind, that in the majority of cases there are many circumstances which contraindicate their employment.

With respect to the use of sulphur in this case, I was led to prescribe it, in this and many other similar cases, from observing that chronic cough and long continued congestion of the bronchial mucous membrane were more effectually relieved by the use of sulphureous waters, such as the Lucan and Harrowgate Spas, than by any other remedy that could be devised. I may here also observe, that the Lucan waters produce very striking effects in diseases of the skin, and



that I have seen intractable cases of psoriasis, which lasted for years, yield to the use of the Lucan waters. It would appear that sulphur, when taken into the system, is either eliminated by the kidneys in the form of sulphates, or exhaled from the skin and mucous tissues in the form of sulphuretted hydrogen, and in this way we arrive at some explanation of its action in diseases of the skin and chronic irritation of the bronchial mucous membrane. In fact, paradoxical as it may appear, sulphur, although evidently stimulating, is, nevertheless, very efficacious in curing many diseases connected with, or depending on, inflammation or congestion. Thus exhibited internally and properly combined, what remedy gives such prompt and certain relief in that painful affection, piles? How rapidly does the specific irritation of the skin, termed scabies, yield to its use? These and similar facts, which might be brought forward in abundance, ought to countenance the use of this medicine in certain chronic inflammatory affections of the bronchial tubes. The celebrated Hoffman was in the habit of adding sulphur to his cough prescriptions in all cases of chronic bronchitis in the aged and debilitated, and I have no doubt that from five to ten grains of sulphur, taken three or four times in the day, is one of the best remedies that can be prescribed in cases of chronic cough, accompanied by constitutional debility and copious secretion into the bronchial tubes. Within the last four years my attention has been particularly directed to the use of sulphur in this and other affections, and I can state from experience that it is a most valuable remedy. As it has a tendency to produce elevation of the pulse, increased heat of skin, and sweating, it will be necessary to temper its stimulant properties by combining it with cream of tartar, which is a cooling aperient, and has the additional advantages of determining gently to the kidneys.\* The addition of the electuary of senna gives additional value to the combination, and quickens its action on the intestines.

Such, gentlemen, are the principles that guided me in prescribing for this man. The long continuance of the complaint, the serious and extensive derangement of the pulmonary mucous membrane, the age, debility, and impoverished circumstances of the patient, forbid me to hope for a perfect cure; but he has been much relieved, and the same remedies applied to less desperate cases would have produced very striking effects. Still, if fortune were this moment to prove favourable to the poor fellow; if, when he leaves the hospital, instead of returning to hardship and exposure, he had the means of living in comfort, taking proper care of himself, travelling for health and amusement, and using a course of chalybeate spa waters, I have little doubt that with these aids the reparative powers of nature would succeed in obliterating every trace of pulmonary derangement.—*London Medical and Surgical Journal*, March 14, 1835.

15. *Remarks on Cough.* By ROBERT J. GRAVES, M. D.—Permit, me, gentlemen, to make a few observations here, on what is properly termed cough. What is cough?—A sudden and violent expulsion of air from the lungs, produced by forcible contraction of the diaphragm, aided by the abdominal and other expiratory muscles. What is the cause of cough?—Pulmonary irritation. What is the nature of this pulmonary irritation?

Here, gentlemen, is a question which every practitioner should put to himself when called on to treat a case of cough, and what affection is there which so frequently demands our assistance and tasks our ingenuity? How abundant, how varied, are the examples of cough we meet with in our daily practice! How obscure do we not find its nature on many occasions, and how difficult and perplexing its treatment! Where the source of irritation is manifest, where the nature of the disease is simple and easily detected, where, after a proper examination, we can point to some part of the respiratory system, and say, here is the seat of the disease; in such cases, indeed, our course is sufficiently clear, we may proceed with confidence, and practice with success. But how often are we, after weeks and even months of close and painful attention, baffled in our best directed efforts, and forced to admit the humbling conviction that all our remedies are inefficient and useless, and that our character, as well as that of the profession, is likely to suffer in public estimation? How often, too, do we discover

\* Baglivi has well said, "In morbis pectoris ad vias urinæ ducendum est."

with surprise, that the cough which we have been treating for weeks as a pure pulmonary affection, depends not on any primary derangement of the respiratory system itself, but upon the irritation of some distant organ, or upon peculiar conditions of the whole economy?

Before I proceed to inquire into the nature of the various sources of pulmonary irritation producing cough, I wish to remark that the exciting cause, or, in other words, that which immediately precedes and seems to give rise to a tendency to cough, is a sensation of tickling in the mucous membrane of the trachea, close to its bifurcation, and opposite the hollow at the fore part of the neck. It is also a curious fact that this sensation of tickling or itching is peculiar to this situation, being never felt in any other part of the pulmonary mucous system. Whether the disease be seated above, as in case of laryngeal affections, or whether it be below, as in case of disease of the lining membrane or parenchyma of the lung, it is here alone that the tickling sensation is felt. Another circumstance equally remarkable and equally difficult of explanation, is the effect of position in cough. Persons labouring under slight bronchitis, or rather slight inflammation of the trachea, who scarcely cough half a dozen times during the course of the day, will, the moment they lie down at night, be seized with a violent and harassing cough, which may last for several minutes, and sometimes for hours, with little intermission. We can easily understand why empyema or pneumonia of one side of the chest may produce cough in certain positions and not in others, for here we have an obvious physical cause; the accumulated fluid in the pleural cavity in the one case, and the diseased lung, whose specific gravity has been much increased by solidification, in the other, exercise an inconvenient degree of pressure on the sound lung, and hence give rise to irritation and cough, particularly in those positions which favour the operation of these physical causes of irritation. Here, however, the cause of irritation is very obscure. It may (but this I merely offer as an hypothesis) depend on the fluid secreted by the mucous membrane trickling over that part of the trachea where the tickling sensation is felt, the flow of mucus to this part being favoured by the recumbent position. That it does not depend on any supposed temporary congestion and irritation of the lung, from the impression made on the skin by cold bed-clothes, I am quite convinced, for I have repeatedly observed it in persons warmly dressed, from merely lying down on a sofa close to the fire. You will, therefore, bear in mind, gentlemen, that although usually, when coughing is induced by any sudden change of position, we may infer that it is connected with some serious lesion of the lungs, or pleura, yet we must not attach too much importance to this symptom in arriving at this conclusion, for cases are occasionally met with in which mere tracheal or bronchial inflammation is attended with the same symptom to a very remarkable degree.

I may observe, *en passant*, that the sensation of tickling, or itching, appears to be almost exclusively confined to the skin. Here it appears to be dependent on slight causes, apparently incapable of producing that modification of nervous sensation, termed pain. In other cases it seems to be connected with the rise and decline of the phenomena which indicate inflammatory action, arising in the first case (where it is generally less observable) from that nervous modification which precedes inflammation, and in the second being connected with some change in the nerves of the part which precedes its return to a healthy condition. It does not appear to affect the mucous tissues, except in a very slight degree, and under peculiar circumstances. It is not observed in the pulmonary mucous tissue, except at that part of the trachea which I have already mentioned, and it does not occur in any part of the intestinal mucous membrane. The only parts connected with the intestinal tube, in which it is felt, are the nose and the anus, and here it is within the reach of scratching, the ordinary mode of relief. This is a fortunate circumstance, gentlemen, for if any part of your bowels were to itch as your skin sometimes does the annoyance would be quite intolerable. If the presence of lumbrici in the small intestines, instead of producing a troublesome itchiness of the nose, as it often does,—if it produced, I say, a degree of itching equally intense in the mucous membrane of the bowels and stomach, what patient could endure greater torments than a person so afflicted? If ascarides gave rise to as intense a degree of itching within the colon, as they occasion at the verge of the anus, how dreadful would be the suffering thus induced!

Passing over the obvious and well known sources of pulmonary irritation, producing cough, such as bronchitis, pneumonia, &c., the first cause to which I shall direct your attention is one of not unfrequent occurrence, and where a mistake in diagnosis may lead to a practice useless to the patient and discreditable to the practitioner. The best mode of illustrating this is by giving a brief detail of a case which I attended with Dr. Shekleton. A young lady, residing in the neighbourhood of Dorset-street, was attacked with symptoms of violent and alarming bronchitis. The fits of coughing went on for hours with extraordinary intensity; it was dry, extremely loud, hollow, and repeated every five or six seconds, night and day, when she was asleep as well as when she was awake. Its violence was such that it threatened, to use a vulgar but expressive phrase, to tear her chest in pieces; and all her friends wondered how her frame could withstand so constant and so terrible an agitation, and yet she fell not away proportionally in flesh, had no fever, and her chest exhibited nothing beyond the râles usually attendant on dry bronchitis. She was bled, leeches, blistered, and got the tartar-emetic mixture, but without experiencing the least relief. We next tried antispasmodics, varying and combining them in every way our ingenuity could suggest, still no change. We next had recourse to every species of narcotics, exhibiting in turn the various preparations of conium, hyoscyamus, opium, and prussic acid, but without the slightest benefit. Foiled in all our attempts we gave up the case in despair, and discontinued our visits. Meeting Dr. Shekleton some time afterwards, I enquired anxiously after our patient, and was surprised to hear she was quite recovered and in the enjoyment of excellent health. *She had been cured all at once by an old woman.* This veteran practitioner, a servant in the family, suggested the exhibition of a large dose of spirits of turpentine, with castor oil, for the purpose of relieving a sudden attack of colic; two or three hours afterwards the young lady passed a large mass of tape worm, and from that moment every symptom of pulmonary irritation disappeared.

The next kind of cough, in which the cause of pulmonary irritation is often misunderstood, is that which occurs in hysteric females. This kind of cough is one of the most alarming diseases in appearance you can possibly witness; in some it is loud, ringing, incessant, and so intensely violent, that one wonders how the air-cells, or blood-vessels, escape being ruptured. In others it is quite as incessant, occurring every two or three seconds, night and day, but is not very loud, and, indeed, in some it scarcely amounts to more than a constant teasing hem; in general the pulse is quick, but it is the quick pulse of hysteria, not of inflammation or fever. The patient suffers no aggravation of the cough from inspiring deeply, and her countenance exhibits no proof of malæration of the blood, on the contrary it is blanched and pallid. She complains of variable, or deficient, appetite, headache, cold feet, and irregular or absent catamenia; although the cough continues for weeks, or even months, she does not emaciate like a person in incipient phthisis, although so much disturbed by the cough, and subsisting on so small a quantity of food.

Here the history of the case, a knowledge of the patient's habit, and the use of the stethoscope, are of great value. You will find that the patient is subject to hysteria, that she is generally pale and of a nervous habit; that the attack came on suddenly, and was superinduced by mental emotion, or some cause acting on the nervous system, or else arose gradually as one of the sequelæ of catamenial disturbance, that the heat of skin and state of pulse are by no means proportioned to the violence of the symptoms, and the stethoscope will tell you that the signs of organic derangement of the lung are absent. You will thus be enabled to arrive at an accurate notion of the nature of the disease, and you will save the patient from the useless and often dangerous employment of antiphlogistic means. Bleeding and leeching are, generally speaking, injurious; such cases are best treated by stimulants, anti-spasmodics, and stimulant purgatives, together with change of air, travelling, and the use of chalybeate spa waters.

The third species of obscure cough to which I shall direct your attention, is one of deep importance for many reasons. It is that species of cough which depends upon pulmonary irritation connected with a venereal taint in the system. That syphilis may attack the pulmonary as well as the cutaneous, osseous, mucous, and other tissues, is not a discovery of modern times; it is a form of the disease long known, and you will find it mentioned by many of the older writers.

Since syphilis has been classed by Willan and others among diseases of the skin, this notion seems to have been either abandoned or forgotten, but, as it strikes me, with very little justice. I entertain a firm conviction, that syphilis may affect the pulmonary as well as it does the cutaneous, or mucous, or osseous tissues, and that a patient, labouring under a venereal taint, may have irritation from this cause set up in the lung as well as in any of those organs in which it is usually manifested. The first person who mentioned this circumstance to me was the late Mr. Hewson, and since that time I have had repeated opportunities of confirming the truth of his opinion. Richter, Alibert, and Paget have well observed, that Willan and Bateman's classification of diseases of the skin is liable to the paramount objection, that it has no reference to the constitutional origin of cutaneous affections. I have the very same fault to find with modern treatises on diseases of the lungs. Pathologists have indeed inquired most accurately into the numerous morbid changes to which the pulmonary tissue is subject, but they have omitted a no less important part of their task, which is to investigate the states of constitution which originated these changes. The agency, indeed, of scrofula has been inquired into with care, but how little attention has been paid to rheumatism, gout, syphilis, and scurvy, the fruitful sources of numerous diseases of the chest.

By far the most interesting point, connected with this affection, is its diagnosis; on this every thing depends. The great importance attached to the diagnosis arises from the circumstance of this disease presenting symptoms analogous to, and consequently being frequently confounded with, phthisis. A patient comes to consult you for cough; you find him pale, emaciated, and feeble; he sleeps badly, and is feverish at night, and has a tendency to sweat. Here there may be a double source of error. If the disease be mistaken for tubercle, and mercury not given, bad consequences will result; on the other hand, if tubercles be present, the effect of administering mercury will be to precipitate the disease to a fatal issue.

What is the nature of this disease, and how are you to recognise it? Mainly, I answer, by the history of the disease. If the patient's sufferings have commenced at the period of time, after primary sores on the genitals, when secondary symptoms usually make their appearance; if some of his complaints are clearly traceable to this source; if, along with debility, night-sweats, emaciation, nervous irritability, and broken rest at night, we find cough; and if this group of symptoms have associated themselves with others, evidently syphilitic, such as periostitis, sore throat, and eruption on the skin, then we may, with confidence, refer all to the same origin, and may look upon the patient as labouring under a syphilitic cachexy, affecting the lungs as well as other parts. In forming this diagnosis much caution and care are necessary, and we must not draw our conclusion until we have repeatedly examined the chest by means of auscultation and percussion: if these fail to detect any tangible signs of tubercles, we may then proceed to act upon our decision with greater confidence, and may advise a sufficient but cautious use of mercury. Under such circumstances it is most pleasing to observe the speedy improvement in the patient's looks and symptoms; the fever, night-sweats, and watchfulness diminish, he begins to get flesh and strength, and, with the symptoms of lues, the cough and pectoral affection disappear. I am not prepared to say which of the pulmonary tissues is most usually attacked by the venereal poison, but I believe that it chiefly tends to the bronchial mucous membrane, although, like other animal poisons, *c. g.*, those of measles and scarlatina, it may also occasionally produce pneumonia.

The fourth species of obscure pulmonary irritation, producing cough, is that which is connected with a gouty diathesis. Gout may attack almost every tissue in the body. We may have it in the joints, as you are all well aware of, we may have it in the muscles and muscular aponeuroses, forming what has been termed the rheumatic gout; it occurs frequently in the fibrous tissues, and I have several times observed it in the cellular substance of various parts of the body, forming either diffuse œdema or tumours, which are exceedingly tender to the touch, and which are removed by treatment calculated to relieve the constitutional affection. It may attack the heart, giving rise to true pericarditis, or else to a functional disease with palpitations, a sensation of fluttering and sinking about that organ, and very remarkable intermission of the pulse; or it may affect the stomach, occa-

sioning dangerous spasm, or various dyspeptic symptoms; or it may seize on the intestines, producing irritation, colic, and gouty diarrhœa. I remember a patient, of a confirmed gouty habit, expressing a great deal of surprise at getting an attack of gout in the testicle, for he could not conceive how a disease, which generally affects the joints, could occur in an organ so different in its nature. I replied that the matter could easily be explained; because fibrous tissue, which gout most frequently attacks, enters into the composition of the testicle as well as that of the joints. Indeed the testicle, with reference to the texture of its envelopes and the extent of motion it enjoys, may be said to be provided with a sac-like joint. In like manner, gout very frequently attacks the mucous membrane of the trachea, or bronchial tubes, causing a dry, annoying, and often very obstinate cough. Where this cough comes on along with the fit of inflammation of the joints, its true nature is frequently overlooked, and it is believed to have originated in cold, and to be mere common bronchitis. No matter, gentlemen, what be the cause of inflammation in a gouty habit, no matter what the organ attacked by the inflammation be, it almost invariably assumes the character of true gouty inflammation. If a gouty person sprains a toe, or an ankle, matters, after progressing for a time in the ordinary way, are sure in the end to exhibit a change of character, and the inflamed parts are observed either to grow unexpectedly worse, or to become stationary, at a time when a speedy termination of the local affection seemed approaching. This is owing to its being now modified by the constitutional tendency to gout, which localizes itself in the affected part. Precisely the same relations may be often observed between common bronchitis, produced by cold in a gouty habit, and the gouty bronchitis it indirectly produces. Gouty bronchitis often becomes chronic, continuing until it is relieved by a regular fit of the gout in the extremities.

The fifth species of pulmonary irritation, in which the source of the disease is more or less obscure, is that which is connected with the scorbutic diathesis. It is important to be aware of this, particularly for those who have charge of the health of the poorer classes, which is almost of more value than that of the rich, for on it their labour and their means of support depend. Among the poor, particularly in cities where the majority live on salt provisions; the scorbutic diathesis is very prevalent. It manifests itself either in the form of puerpera, or in tendencies to hæmorrhage from the nose, stomach, bowels, and bladder. It sometimes attacks the lungs, producing irritation of the bronchial mucous membrane, with cough, and spitting of blood, and occasionally gives rise to pulmonary apoplexy. It is evident that pulmonic cases of this nature, originating in a scorbutic diathesis, produced by confined air, damp lodging, and a salt diet, will require a treatment peculiar to themselves, both during the attack and during convalescence.

The last source of pulmonary irritation, to which I shall direct your attention, is that which proceeds from scrofula. You all know that scrofula has a tendency to attack every tissue in the body, but you may not perhaps be aware, that it may affect those tissues in very different ways, and that scrofulous irritation may manifest itself in various forms, from the most trifling and transitory to the most extensive and permanent. I recollect a case I attended with Dr. Jacob, in which this fact struck me very forcibly. A fine boy of high complexion, precocious intellect, and other marks of the scrofulous diathesis, got an attack of the scrofulous ophthalmia of an intense character, and it required all the skill and ingenuity of Dr. Jacob to save him from blindness. During the period of our attendance, his brother (who was also of a strumous habit, began to complain of parts of his arm being sometimes a little sore. This circumstance attracted my attention, and on examination I found that several circular diffused swellings, of various sizes, often equalling half a crown in diameter, had successively appeared on different parts of his extremities and body. They evidently depended on inflammation of the subcutaneous cellular tissue, and exhibited a remarkable example of a most transitory local affection, produced by a constitutional cause, for these swellings arose, arrived at their acmé, and subsided in the space of ten or twelve hours; they constituted, in truth, the first efforts of the scrofulous diathesis, to localize itself, and, after a few weeks' continuance, they were replaced by distinct and fixed scrofulous inflammation of the metatarsal bones.

Here was a very curious and instructive fact. A boy, evidently of a scrofulous

lous diathesis, has circumscribed tumours, which arise, come to maturity of irritation, and subside in the course of a few hours. In some weeks afterwards, scrofulous irritation, in a decided and permanent form, fixes itself in the foot, producing inflammation and ulceration. From this it may be inferred, that scrofula (for in this case I am firmly convinced these tumours were connected with strumous diathesis) may attack parts not only in its more permanent and destructive forms, but also in a manner so trifling and so transitory, as to subside in a few hours, and leave no trace of its existence. The inferences deducible from this fact are numerous and important, for if scrofula may thus produce an acute and transitory inflammation of the subcutaneous cellular tissue, surely it may occasionally give rise to somewhat similar affections of internal organs, as the bowels, the lungs, &c., and thus may occasion an acute bronchitis, a pneumonia, or an inflammation of the mucous membrane of the intestines, totally independent of the operation of cold, or the usual causes of such affections. It has been too much the custom to refer merely chronic and fixed local inflammations to the agency of constitutional causes. The example before us proves that even the most transitory may have this origin.

Scrofulous irritation may affect either the lining membrane or the parenchyma of the lung, giving rise in the one case to scrofulous bronchitis, in the other to scrofulous pneumonia, two affections which may exist separately or combined, and either of which may prove fatal, with or without the development of tubercles in the lungs. Tubercles have, as I have elsewhere proved, too exclusively engrossed the attention of those who have investigated the pathology of phthisis; they are a very frequent product of the scrofulous diathesis, but the scrofulous bronchitis and scrofulous pneumonia are still more frequent and more important, and do not, as is falsely supposed, depend upon the presence of tubercles in the lungs. The pneumonia, the bronchitis, and the tubercles, where they occur together, are all produced by one common cause,—scrofula. Of this more hereafter.—*Ibid.*

16. *Hæmorrhage from the Gums.*—The following interesting case of this accident is related by Mr. FULLER, in the *India Journal of Medical Science*, for August, 1834.

May 13.—An European child, of fair complexion, six months old, had been attended by me, for fever, several days. I had proposed lancing the gums in the beginning—but the parents being unwilling to allow it, I deferred it. The child not going on satisfactorily, I again urged the propriety of lancing the gums. They were lanced in the usual way—and bled freely at the time—the child then fell asleep. Two hours afterwards, half-past 5 p. m., I was sent for, as the gums had continued to bleed, whilst the child slept. I found the little fellow very pale and exhausted—his ears were become perfectly white and transparent—the scalp, before red and hot, now cool and pale. I applied spirits of turpentine, by means of lint, to the gums, and gave the child Tr. Opii. 10 or 12 drops, (not minims,) and the same quantity of turpentine—the child had vomited about an oz. of blood, besides what ran out of his mouth.

8 p. m.—Child asleep, and no more bleeding.

May 14, 7 a. m.—Child slept till 4 o'clock this morning—no more hæmorrhage.

7 p. m.—No bleeding—passed several stools containing clots of blood.

May 15.—A slight hæmorrhage about 9 a. m., in consequence of the nurse allowing the child to put a wooden toy into its mouth—this stopped of itself.

May 16.—Sent for very early this morning, as the bleeding had returned with violence; this was caused by the edges of a silver tea-spoon, in giving the child some castor oil. The bleeding stopped of itself—but not before the child had lost a great deal of blood—gave it a few drops of laudanum.

1 p. m.—Bleeding had returned with increased violence—but had partly stopped when I arrived. I waited two hours—at the end of which time, it broke out afresh. I remarked that the child constantly sucked the gums. All the usual styptics having proved useless, and the difficulty of properly applying them, in so young a child, rendered them still likely to continue, I applied the actual cautery to the spot in the upper gum, from which alone the blood issued—the bleeding stopped instantly, and never returned. During the operation, the restlessness of the poor child, together with the force necessary to keep the mouth open,



made the lower gum bleed, for the first time since the day on which they were lanced—this stopped at the time, spontaneously—child much reduced.

May 17.—The father of the child wrote to say that I need not call till the evening, as the bleeding had not returned; but at half-past 2 p. m. I was sent for in a great hurry—the lower gum having burst out bleeding very profusely. I applied the hot iron—child very restless, and, in consequence, the application was not perfect, and blood continuing to ooze;—I repeated the application two hours afterwards, and the result was complete success—the child threw up about half an ounce of blood, and passed blood in some of its stools afterwards. A few days after the last application of the hot iron, a lower tooth made its appearance in the very spot from which the bleeding came. No fever, of any consequence, remained after the day the gums were lanced on. I do not think that the bleeding would have returned, had it not been provoked, in the first instance, by the accidental circumstance above mentioned, as 40 hours had elapsed since the first bleeding had been stopped. The child is of a scrofulous habit, and had been taking a small quantity of calomel for his fever—perhaps these may, in some measure account, coupled with the unhealthy tendency of blood to the brain, for this unusual bleeding from the simple division of the gums.

## MATERIA MEDICA AND PHARMACY.

17. *Solidification of Turpentine by Magnesia.*—From M. Mialhe's experiments on copaiba, and M. Faure's on turpentine, it appears that these oleo-resinous juices are most readily solidified by magnesia. The quantity of the latter, however, that is necessary to form a solid mass varies in using different species of turpentine. In this respect there is a marked difference between the common turpentines, such as those of Bordeaux, and the fine sorts, such as the Venetian, which require a much greater quantity than the former. M. Mouchon found that an ounce of Briançon turpentine mixed with an ounce of hydrocarbonate of magnesia, formed a pilular mass, which was a long time before it hardened even a little, and the pills made from which soon loose their globular form.

An ounce of Bordeaux turpentine, with six drachms one scruple of hydrocarbonated magnesia, makes pills which harden very slowly, but eventually become pulverulent.

An ounce of Bordeaux turpentine and eight grains of oxide of magnesium, procured by intense calcination, gives a very soft mass, which does not take on a pilular consistence before thirty-six hours. After a few days it resists, in a slight degree, the impress of the fingers, but is truly fragile for a long time. By augmenting the quantity of magnesia, the hardening of the mass takes place more promptly; but to have pills consistent in a few minutes, and to have a magistral preparation, the proportion of magnesia must be increased to a 50th. Pills thus made are pulverulent in forty-eight hours, are transparent, and have a vitreous fracture.

These facts and experiments of M. Faure, repeated by M. M. Guibourt, Lecanu, and Blandeau, lead to the following practical conclusions:—

1. *Carbonated magnesia* should be preferred and employed in equal proportion to solidify Briançon turpentine.

2. When the turpentine of the *Pinus abies* is to be rendered solid, *calcined magnesia* is preferable.

3. The proportions of both should be smaller according to the length of time since the turpentine was collected.

4. In acting on the turpentine of the *Pinus abies*, reduced by time to a medium consistence, the solidification is effected in thirty-six hours, by means of a fraction of oxide of magnesium equivalent to about 1-72 of the mass.—*Journal de Chimie Méd.* July, 1834.

18. *Dupuytren's Pommade to prevent the Hair from falling out.*—Macerate a drachm of powdered cantharides in an ounce of spirits of wine, and filter. Take ten parts of this tincture and rub it in a mortar with ninety parts of cold lard.